INDEX

ABELL, RICHARD G. Quantitative studies of the rate of passage of protein and other nitrogenous substances through the walls of growing and of differentiated mammalian blood capillaries (abstract), 320.

ABRAMOWITZ, A. A. A new method for the assay of intermedin (abstract), 327.

——, R. K. AND A. A. Moulting and viability after removal of the eyestalks in Uca pugilator (abstract), 326.

Activation, Cumingia and Arbacia eggs, by bivalent cations (abstract), 333.

ADDISON, WILLIAM H. F. On the histology of the mammalian carotid sinus (abstract), 314.

"Agglutination" with spermatozoa of Chiton tuberculatus, 157.

Alcohols, permeability-decreasing effect, on human erythrocyte (abstract), 320.

Alkaline earths, stabilizing action on crab nerve membranes (abstract), 309.

ALSUP, FRED W. Photodynamic action in the eggs of Nereis limbata (abstract), 324.

Amblystoma punctatum embryo, differentiation of isolated rudiments (abstract), 299.

Amoeba, growth and structure, as affected by kind of food, 391.

——, vacuole systems (abstract), 334.

ANDERSON, PRISCILLA L. *See* Goodrich and Anderson, 184.

ANDERSON, RUBERT S. The x-ray effect on the cleavage time of Arbacia eggs in the absence of oxygen (abstract), 325.

Androgenetic development, egg of Rana pipiens, 233.

ANGERER, C. A. The effect of electric current on the relative viscosity of sea-urchin egg protoplasm, 399.

Animal jellies, chemical and mechanical properties (abstract), 331.

Aphids, female, germaria in ovariole differentiation, 135.

Arbacia egg, activation by bivalent cations (abstract), 333.

—— ——, cleavage, effects of Roentgen radiation on related phenomena, 331.

—— —— cortex, response to chemical and physical agents, in absence of oxygen (abstract), 335.

—— ——, fertilized, oxygen consumption and cell division, in presence of respiratory inhibitors (abstract), 318.

—— ——, intra-cellular distribution of reducing systems (abstract), 328.

—— ——, pigment granules (abstract), 310.

——, hermaphroditic, 74.

——, method of determining sex and producing twins, triplets and quadruplets (abstract), 312.

—— punctulata egg, cleavage delay after irradiation while closely packed in capillary tubes (abstract), 324.

Arbacia punctulata egg, first division, effects of colchicine (abstract), 328.

—— —— ——, unfertilized, fatty acid compounds in (abstract), 323.

ARMSTRONG, FLORENCE, MARY MAXFIELD, C. LADD PROSSER AND GORDON SCHOEPFLE. Analysis of the electrical discharge from the cardiac ganglion of Limulus (abstract), 327.

Ascidia, embryonic induction, 216.

BACTERIA, in fouling of submerged surfaces (abstract), 302.

BAILEY, KENNETH. Crystallization of myogen from skeletal muscle (abstract), 303.

——, ——. Crystalline myogen (abstract), 322.

BALL, ERIC G., AND BETTINA MEYERHOF. The occurrence of cytochrome and other hemochromogens in certain marine forms (abstract), 321.

BALLENTINE, ROBERT. The intracellular distribution of reducing systems in the Arbacia egg (abstract), 328.
BARTH, L. G. Neural differentiation without organizer (abstract), 299.
BEADLE, G. W., EDWARD L. TATUM AND C. W. CLANCY. Development of eye colors in Drosophila: production of v^+ hormone by fat bodies, 407.
BEADLE, G. W. *See* Tatum and Beadle, 415.
BEAMS, H. W. *See* Evans and Beams (abstract), 331.
——, —. —., AND T. C. EVANS. Some effects of colchicine upon the first division of the eggs of Arbacia punctulata (abstract), 328.
BISSONNETTE, THOMAS H., AND ALBERT CSECH. Modified sexual photoperiodicity in cotton-tail rabbits, 364.
Blood capillaries, mammalian, passage of protein and other nitrogenous substances through walls (abstract), 320.
——, and respiratory ability, freshwater fish (abstract), 300.
BOTSFORD, E. FRANCES. Temporal summation in neuromuscular responses of the earthworm, Lumbricus terrestris (abstract), 328.
Brachydanio rerio, karyokinesis during cleavage, 79.
BRAGG, ARTHUR N. Observations upon amphibian deutoplasm and its relation to embryonic and early larval development, 268.
VON BRAND, THEODOR. Chemical and histochemical observations on Macracanthorhynchus hirudinaceus (abstract), 303.
— ——, ——, NORRIS W. RAKESTRAW AND CHARLES E. RENN. Further experiments on the decomposition and regeneration of nitrogenous organic matter in sea water, 285.
Bresslaua, pH reactions during feeding (abstract), 303.
BROWN, F. A., JR. The source of chromatophorotropic hormones in crustacean eyestalks (abstract), 329.
——, —. —., —., AND ONA CUNNINGHAM. Influence of the sinusgland of crustaceans on normal viability and ecdysis, 104.
——, —. —., —., AND H. E. EDERSTROM. On the control of the dark chromatophores of Crago telson and uropods (abstract), 330.
——, —. —., —., AND H. H. SCUDAMORE. Comparative effects of sinusgland extracts of different crustaceans on two chromatophore types (abstract), 329.
BROWN, MORDEN G. The blocking of excystment reactions of Colpoda duodenaria by absence of oxygen, 382.
BUCK, JOHN B. Micromanipulation of salivary gland chromosomes (abstract), 330.
BURGER, J. WENDELL. Some experiments on the relation of the external environment to the spermatogenetic cycle of Fundulus heteroclitus (L.), 96.
BUTCHER, EARL O. The illumination of the eye necessary for different melanophoric responses of Fundulus heteroclitus, 258.

CABLE, R. M., AND A. V. HUNNINEN. Studies on the life history of Spelotrema Nicolli (abstract), 309.
Calcium chloride, response of frog striated muscle (abstract), 332.
CAMPBELL, J. B. S., AND M. H. JACOBS. Studies on the permeability-decreasing effect of alcohols and pharmacologically related compounds on the human erythrocyte (abstract), 320.
Carassius auratus, differential effect of radiations on Mendelian phenotypes, 192.
—— ——, variations of color pattern in hybrids, 184.
Cell cleavage, as affected by leukotaxine (abstract), 335.
——, living, in action (abstract), 308.
—— permeability, increased, mechanism (abstract), 318.
—— —— to water, effect of leukotaxine (abstract), 335.
—— processes, effects of hydrostatic pressure (abstract), 305.
Centropages typicus, reactions to light and gravity, 200.
Chaetopterus eggs, water permeability (abstract), 317.
——, method of feeding, 115.
CHASE, AURIN M. Color changes in luciferin solutions (abstract), 323.

Chemical and mechanical properties of two animal jellies (abstract), 331.
CHILD, GEORGE P. The effect of increasing time of development at constant temperature on the wing size of vestigial of Drosophila melanogaster, 432.
Chilomonas paramecium, respiration (abstract), 298.
—— ——, temperature and starch and fat (abstract), 298.
Cholinesterase, in invertebrates (abstract), 321.
Chromatophores, dark, control of, in Crago telson and uropods (abstract), 330.
Chromatophore types, comparative effects of sinusgland extracts of different crustaceans (abstract), 329.
Chromatophoric hormones, source in crustacean eyestalks (abstract), 329.
CLAFF, C. LLOYD AND G. W. KIDDER. pH reactions during feeding in the ciliate Bresslaua (abstract), 303.
CLANCY, C. W. *See* Beadle, Tatum and Clancy, 407.
Cleavage delay in Arbacia eggs after irradiation while closely packed in capillary tubes (abstract), 324.
Cleavage, effect of leukotaxine (abstract), 335.
——, effects of Roentgen radiation on related phenomena, Arbacia eggs (abstract), 331.
——, first, Arbacia eggs, effects of colchicine (abstract), 328.
——, karyokinesis during, zebra fish, 79.
—— time of Arbacia eggs in absence of oxygen, x-ray effect (abstract), 325.
CLOWES, G. H. A. *See* Krahl, Keltch and Clowes (abstract), 318.
COHEN, IRVING. Cleavage delay in Arbacia punctulata eggs irradiated while closely packed in capillary tubes (abstract), 324.
Colchicine, effects on first division of Arbacia eggs (abstract), 328.
Color patterns, variations in goldfish hybrids, 184.
—— responses of catfishes with single eyes (abstract), 312.
Colpidium campylum, growth as affected by biologically conditioned medium (abstract), 297.
Colpoda duodenaria, oxygen lack and blocking of excystment reactions, 382.
Contraction, frequency, conditions governing, heart of Venus mercenaria (abstract), 315.
——, muscular, Clark's theory (abstract), 314.
COSTELLO, D. P., AND R. A. YOUNG. The mechanism of membrane elevation in the egg of Nereis (abstract), 311.
Crago telson and uropods, control of dark chromatophores (abstract), 330.
CRAWFORD, JOHN D. *See* Navez and Crawford (abstract), 315.
Crayfish, retinal pigment and theory of asymmetry of flicker-response contour, 126.
——, retinal pigment migration, effect of eye-stalk extracts, 119.
CROZIER, W. J., AND ERNST WOLF. The flicker-response contour for the crayfish. II. Retinal pigment and the theory of the asymmetry of the curve, 126.
CSECH, ALBERT. *See* Bissonnette and Csech, 364.
Cumingia eggs, activation by bivalent cations (abstract), 333.
CUNNINGHAM, ONA. *See* Brown and Cunningham, 104.
Cytochrome, occurrence of, and other hemochromogens in certain marine forms (abstract), 321.
Cytoplasm, does action of x-rays on nucleus depend on? (abstract), 326.

DACTYLOMETRA quinquecirrha, L. Agassiz, life cycle, in Chesapeake Bay, 368.
Dark-adaptation and reversal of phototropic sign in Dineutes, 354.
Decomposition, nitrogenous organic matter in sea water, 285.
Deutoplasm, amphibian, and embryonic and early larval development, 268.
DEWEY, VIRGINIA C. Test secretion in two species of Folliculina, 448.
Diet, effect on eye color development, Drosophila, 415.
Differentiation, isolated rudiments of Amblystoma punctatum embryo (abstract), 299.

——, neural, without organizer (abstract), 299.
Dihydroxyestrin, effect of injection into castrated female frogs (abstract), 338.
Dineutes, dark adaptation and reversal of phototropic sign, 354.
Dogfish, fetal, absence of epithelial hypophysis, and head and pigmentation abnormalities, 174.
Drosophila, eye color development, v^+ production by fat bodies, 407.
——, eye color, effect of diet, 415.
—— melanogaster, wing size of vestigial, effect of increasing development time at constant temperature, 432.
DURYEE, WILLIAM R. Does the action of x-rays on the nucleus depend upon the cytoplasm? (abstract), 326.

EARTHWORM, temporal summation in neuromuscular responses (abstract), 328.
Ecdysis, influence of sinusgland of crustaceans, 104.
EDERSTROM, H. E. *See* Brown and Ederstrom (abstract), 330.
Egg-sea-water-neutralizing substances from spermatozoa, Echinometra subangularis, 147.
Eggs, mosaic, regulation in (abstract), 308.
Electric current, effect on viscosity of protoplasm sea urchin egg, 399.
Embryo, androgenetic, Triturus viridescens, after cessation of development (abstract), 334.
——, development, related to amphibian deutoplasm, 268.
——, induction in, Ascidia, 216.
Emplectonema kandai, Kato, luminescence, 166.
Endamoeba muris, food habits (abstract), 313.
Erythrocyte, human, permeability-decreasing effect of alcohols (abstract), 320.
——, mammalian, factors affecting hemolysis by *n*-butyl alcohol (abstract), 319.
EVANS, T. C. *See* Beams and Evans (abstract), 328.
EVANS, T. C. AND H. W. BEAMS. Effects of Roentgen radiation on certain phenomena related to cleavage in Arbacia eggs (Arbacia punctulata) (abstract), 331.
Excystment reactions, blocked by oxygen lack in Colpoda duodenaria, 382.
Eye color development, effect of diet on, Drosophila, 415.
—— —— —— in Drosophila, 407.
—— illumination, necessary for different melanophoric responses, Fundulus, 258.
Eye-stalk extracts, action on retinal pigment migration in crayfish, 119.
Eyestalks, removal, moulting and viability after, Uca pugilator (abstract), 326.

FAWCETT, DON WAYNE. Absence of the epithelial hypophysis in a fetal dogfish associated with abnormalities of the head and of pigmentation, 174.
Feeding, method of, in Chaetopterus, 115.
——, —— —, — tunicates, 443.
——, pH reactions during, in ciliate Bresslaua (abstract), 303.
Fermentation and respiration in higher plants (abstract), 301.
FERRY, JOHN D. Chemical and mechanical properties of two animal jellies (abstract), 331.
Fertilization, activity-preventing and egg-sea-water neutralizing substances from spermatozoa, Echinometra subangularis, 147.
——, "agglutination" phenomenon with spermatozoa of Chiton tuberculatus, 157.
——, fixation of x-ray effect in Arbacia eggs (abstract), 325.
Flicker-response contour, asymmetry of, and retinal pigment, crayfish, 126.
Folliculina, test secretion in two species, 448.
Food, growth, and structure in Amoeba, 391.
—— habits of Endamoeba muris (abstract), 313.
Forty-first report of the Marine Biological Laboratory, 1.
Fouling, rôle of bacteria, submerged surfaces (abstract), 302.
Fundulus embryos, regeneration (abstract), 336.
——, eye illumination for different melanophoric responses, 258.
—— heteroclitus (L.), spermatogenetic cycle and external environment, 96.

——, male sexual cycle and effects of light and temperature, 92.
——-Scomber hybrid, pigment inheritance (abstract), 316.
—— scomber hybrid, pigment inheritance, 423.

GANGLION, cardiac, electrical discharge from, Limulus (abstract), 327.
Germaria, in differentiation of ovarioles, female aphids, 135.
GLICK, DAVID. *See* Smith and Glick (abstract), 321.
GODDARD, DAVID R. The relation between fermentation and respiration in higher plants (The Pasteur Effect) (abstract), 301.
GOODRICH, H. B., AND PRISCILLA L. ANDERSON. Variations of color pattern in hybrids of the goldfish, Carassius auratus, 184.
——, —. —., AND J. P. TRINKAUS. The differential effect of radiations on Mendelian phenotypes of the goldfish, Carassius auratus, 192.
GRAHAM, JUDITH E., AND F. J. M. SICHEL. Response of frog striated muscle to $CaCl_2$ (abstract), 332.
Gravity, reactions to, Centropages typicus, 200.
Growth and structure, Amoeba, effect of kind of food, 391.
——, Colpidium, effect of biologically conditioned medium (abstract), 297.
GUTTMAN, RITA. Stabilizing action of alkaline earths upon crab nerve membranes, as manifested in resting potential measurements (abstract), 309.

HARRIS, D. L. An experimental study of the pigment granules of the Arbacia egg (abstract), 310.
HARVEY, ETHEL BROWNE. An hermaphrodite Arbacia, 74.
——, —— ——. A method of determining the sex of Arbacia and a new method of producing twins, triplets and quadruplets (abstract), 312.
——, —— ——. An artificial nucleus in a non-nucleate half-egg (abstract), 312.
HAYWOOD, CHARLOTTE. The permeability of the toadfish liver to inulin (abstract), 332.
Heart, as affected by certain drugs, in ascidian Perophora viridis (abstract), 337.
——, contraction, conditions governing frequency, Venus mercenaria (abstract), 315.
Hemolysis, rate of, by *n*-butyl alcohol, factors affecting, in mammalian erythrocyte (abstract), 319.
Hemopoietic organs, young albino rats, quantitative study (abstract), 314.
HENSHAW, P. S. Fixation of x-ray effect by fertilization in Arbacia eggs (abstract), 325.
Hermaphrodite Arbacia, 74.
HOLLINGSWORTH, JOSEPHINE. Activation of Cumingia and Arbacia eggs by bivalent cations (abstract), 333.
HOPKINS, DWIGHT L. The vacuole systems of a fresh water limacine Amoeba (abstract), 334.
Hormones, chromatophorotropic, source in crustacean eyestalks (abstract), 329.
HUNNINEN, A. V. *See* Cable and Hunninen (abstract), 309.
HUTCHENS, JOHN. Respiration in Chilomonas paramecium (abstract), 298.
——, ——, AND M. E. KRAHL. Effect of increased intracellular pH on the physiological action of substituted phenols (abstract), 322.
Hydrostatic pressure, effects on certain cellular processes (abstract), 305.
Hypophysis, epithelial, absence of, and abnormalities of head and pigmentation in fetal dogfish, 174.

INHERITANCE, pigment, Fundulus-Scomber hybrid, 423.
Intermedin, method for assay (abstract), 327.
Inulin, permeability to, of toadfish liver (abstract), 332.
Invertebrates, cholinesterase in (abstract), 321.
IRVING, LAURENCE. The relation of blood to the respiratory ability of fresh water fish (abstract), 300.

JACOBS, M. H. *See* Campbell and Jacobs (abstract), 320.
——, —. —. *See* Netsky and Jacobs (abstract), 319.
——, —. —., AND A. K. PARPART. A mechanism of increased cell per-

meability resembling catalysis (abstract), 318.
Jellies, animal, chemical and mechanical properties (abstract), 331.
JOHNSON, W. H., AND J. E. G. RAYMONT. The reactions of the planktonic copepod, Centropages typicus, to light and gravity, 200.

KANDA, SAKYO. The luminescence of a nemertean, Emplectonema kandai, Kato, 166.
Karyokinesis during cleavage of zebra fish, 79.
KATZIN, LEONARD I. The ionic permeability of frog skin as determined with the aid of radioactive indicators (abstract), 302.
KAYLOR, CORNELIUS T. Cytological studies on androgenetic embryos of Triturus viridescens which have ceased development (abstract), 334.
——, —— —. Experiments on the production of haploid salamanders (abstract), 307.
KELTCH, A. K. *See* Krahl, Keltch and Clowes (abstract), 318.
KIDDER, G. W. The effect of biologically conditioned medium upon the growth of Colpidium campylum (abstract), 297.
KINDRED, J. E. A quantitative study of the hemopoietic organs of young albino rats (abstract), 314.
KITCHING, J. A. The effects of a lack of oxygen, and of low oxygen tensions, on Paramecium, 339.
——, —. —. *See* Moser and Kitching (abstract), 335.
——, —. —. The effects of lack of oxygen and of low oxygen tensions, on the activities of some Protozoa (abstract), 304.
KRAHL, M. E. *See* Hutchens and Krahl (abstract), 322.
KRAHL, M. E., A. K. KELTCH AND G. H. A. CLOWES. Oxygen consumption and cell division of fertilized Arbacia eggs in the presence of respiratory inhibitors (abstract), 318.

LAWSON, CHESTER A. The significance of germaria in differentiation of ovarioles in female aphids, 135.
Leukotaxine, effect on cell cleavage (abstract), 335.
——, effect on cell permeability to water (abstract), 335.
Light, effects on male sexual cycle, Fundulus, 92.
——, reactions, Centropages typicus, 200.
Limulus, analysis of electrical discharge from cardiac ganglion (abstract), 327.
LITTLEFORD, ROBERT A. The life cycle of Dactylometra quinquecirrha, L. Agassiz in the Chesapeake Bay, 368.
Luciferin solutions, color changes (abstract), 323.
Luminescence of a nemertean, Emplectonema kandai, Kato, 166.

MACGINITIE, G. E. The method of feeding of Chaetopterus, 115.
——, —. —. The method of feeding of tunicates, 443.
Macracanthorhynchus hirudinaceus, chemical and histochemical observations (abstract), 303.
Marine Biological Laboratory, forty-first annual report, 1.
MARSLAND, D. A. Effects of hydrostatic pressure upon certain cellular processes (abstract), 305.
MARTIN, W. E. Studies on the trematodes of Woods Hole. II. The life cycle of Stephanostomum tenue (Linton), 65.
MAST, S. O. The relation between kind of food, growth and structure in Amoeba, 391.
MATTHEWS, SAMUEL A. The effects of light and temperature on the male sexual cycle in Fundulus, 92.
MAXFIELD, MARY. *See* Armstrong, Maxfield, Prosser and Schoepfle (abstract), 327.
Melanophore responses, and eye illumination, Fundulus, 258.
Membrane elevation, mechanism in Nereis egg (abstract), 311.
MENKIN, VALY. Effect of leukotaxine on cell cleavage (abstract), 335.
——, ——. Effect of leukotaxine on cellular permeability to water (abstract), 335.
MEYERHOF, BETTINA. *See* Ball and Meyerhof (abstract), 321.
Micromanipulation of salivary gland chromosomes (abstract), 330.

MOSER, FLOYD. The differentiation of isolated rudiments of the Amblystoma punctatum embryo (abstract), 299.
——, —— AND J. A. KITCHING. Response of the Arbacia egg cortex to chemical and physical agents in the absence of oxygen (abstract), 335.
Moulting and viability after removal of eyestalks in Uca pugilator (abstract), 326.
Muscle contraction, Clark's theory (abstract), 314.
——, skeletal, crystallization of myogen (abstract), 303.
——, striated, refractory period in nonconducted response (abstract), 316.
——, ——, response to $CaCl_2$ in frog (abstract), 332.
Myogen, crystalline (abstract), 322.
——, crystallization from skeletal muscle (abstract), 303.

NABRIT, S. MILTON. Further studies on regeneration in Fundulus embryos (abstract), 336.
NAVEZ, ALBERT E. Fatty acid compounds in the unfertilized egg of Arbacia punctulata (abstract), 323.
——, —— ——., AND JOHN D. CRAWFORD. Conditions governing the frequency of contraction of the heart of Venus mercenaria (abstract), 315.
Nereis egg, membrane elevation, mechanism of (abstract), 311.
—— limbata eggs, photodynamic action (abstract), 324.
—— spawning, induced by material elaborated by fertilizable Nereis eggs (abstract), 306.
Nerve asphyxiation and aerobic recovery in relation to temperature (abstract), 305.
——, differentiation without organizer (abstract), 299.
—— membranes, crab, stabilizing action of alkaline earths (abstract), 309.
NETSKY, M. G., AND M. H. JACOBS. Some factors affecting the rate of hemolysis of the mammalian erythrocyte by *n*-butyl alcohol (abstract), 319.
Neuromuscular responses, temporal summation, in earthworm (abstract), 328.
Nitrogenous organic matter, in sea water, decomposition and regeneration, 285.
NOVIKOFF, ALEX B. Regulation in mosaic eggs (abstract), 308.
Nucleus, artificial, in non-nucleate half-egg (abstract), 312.

OLFACTORY organ, anuran, determination and induction (abstract), 311.
Ovariole differentiation, germaria in, female aphids, 135.
Oxygen consumption and cell division, fertilized Arbacia eggs in presence of respiratory inhibitors (abstract), 318.
—— lack, and blocking of excystment reactions, Colpoda, 382.
—— —— and low oxygen tension, effect on Paramecium, 339.
—— —— and response of Arbacia egg cortex to chemical and physical agents (abstract), 335.
Oxygen lack, and x-ray effect on cleavage time of Arbacia eggs (abstract), 325.
—— ——, effects on activities of some Protozoa (abstract), 304.

PARAMECIUM, effect of oxygen lack and low oxygen tension, 339.
PARKER, G. H. Color responses of catfishes with single eyes (abstract), 312.
PARPART, A. K. *See* Jacobs and Parpart (abstract), 318.
Permeability, cell, effect of leukotaxine (abstract), 335.
——, ——, increased, mechanism of, resembling catalysis (abstract), 318.
——, ionic, of frog skin, determined by radioactive indicators (abstract), 302.
——, to inulin, of toadfish liver (abstract), 332.
——, water, of Chaetopterus eggs (abstract), 317.
Perophora viridis, action of certain drugs on intact heart (abstract), 337.
Phenols, substituted, effect of increased intracellular pH on physiological action (abstract), 322.
pH reactions during feeding in ciliate Bresslaua (abstract), 303.

Photodynamic action in eggs of Nereis limbata (abstract), 324.
Photoperiodicity, sexual, modified, in cotton-tail rabbits, 364.
Pigmentation abnormalities, and absence of epithelial hypophysis in fetal dogfish, 174.
Pigment granules of Arbacia egg (abstract), 310.
—— inheritance in Fundulus-Scomber hybrid (abstract), 316.
—— ——, in Fundulus Scomber hybrid, 423.
——, retinal, and asymmetry of flicker-response contour, crayfish, 126.
PORTER, K. R. Androgenetic development of the egg of Rana pipiens, 233.
Program and abstracts of scientific papers presented at the Marine Biological Laboratory, summer of 1939, 297.
PROSSER, C. LADD. *See* Armstrong, Maxfield, Prosser and Schoepfle (abstract), 327.
Protein, passage of, and other nitrogenous substances through walls of growing and differentiated mammalian blood capillaries (abstract), 320.
Protoplasm, viscosity, as affected by electric current, sea urchin egg, 399.
Protozoa, oxygen lack and low oxygen tensions, effects on activities (abstract), 304.

RABBITS, cotton-tail, modified sexual photoperiodicity, 364.
Radiations, differential effect, on Mendelian phenotypes of goldfish, 192.
——, Roentgen, effects on phenomena related to cleavage in Arbacia eggs (abstract), 331.
RAKESTRAW, NORRIS W. *See* von Brand, Rakestraw and Renn, 285.
Rana pipiens, androgenetic development of egg, 233.
—— ——, effect of injection of solution of dihydroxyestrin into castrated females (abstract), 338.
RAYMONT, J. E. G. Dark adaptation and reversal of phototropic sign in Dineutes, 354.
——, —. —. *See* Johnson and Raymont, 200.
Reducing systems, intracellular distribution, in Arbacia egg (abstract), 328.
Regeneration, Fundulus embryos (abstract), 336.
——, nitrogenous organic matter, in sea water, 285.
RENN, CHARLES E. *See* von Brand, Rakestraw and Renn, 285.
Respiration and fermentation in higher plants (abstract), 301.
——, Chilomonas paramecium (abstract), 298.
——, freshwater fish, relation of blood to (abstract), 300.
Retinal pigment migration, crayfish, action of eyestalk extracts, 119.
Roentgen radiation, effect on phenomena related to cleavage in Arbacia eggs (abstract), 331.
ROOSEN-RUNGE, EDWARD C. Karyokinesis during cleavage of the zebra fish Brachydanio rerio, 79.
ROSE, S. MERYL. Embryonic induction in the Ascidia, 216.
RUSSELL, ALICE M. Pigment inheritance in the Fundulus-Scomber hybrid (abstract), 316.
——, —— —. Pigment inheritance in the Fundulus scomber hybrid, 423.

SAFFORD, VIRGINIA. The use of the swimbladder by fish in respiratory stress (abstract), 317.
Salamanders, haploid, production (abstract), 307.
Salivary gland chromosomes, micromanipulation (abstract), 330.
SANDOW, ALEXANDER. On Clark's theory of muscular contraction (abstract), 314.
SCHOEPFLE, GORDON. *See* Armstrong, Maxfield, Prosser and Schoepfle (abstract), 327.
SCUDAMORE, H. H. *See* F. A. Brown, Jr. and H. H. Scudamore (abstract), 329.
Sex cycle, light and temperature effects, Fundulus, 92.
——, determination, in Arbacia (abstract), 312.
——, photoperiodicity, modified, in cotton-tail rabbits, 364.
SHAPIRO, HERBERT. Nerve asphyxiation and aerobic recovery in relation to temperature (abstract), 305.

——, ——. Water permeability of Chaetopterus eggs (abstract), 317.
SICHEL, F. J. M. The refractory period in the non-conducted response of striated muscle (abstract), 316.
Sinusgland, crustacean, influence on normal viability and ecdysis, 104.
—— extracts, different crustaceans, comparative effects on two chromatophore types (abstract), 329.
Sinus, mammalian carotid, histology of (abstract), 314.
SMITH, CARL C., AND DAVID GLICK. Some observations on cholinesterase in invertebrates (abstract), 321.
——, JAY A. Temperature and starch and fat in Chilomonas paramecium (abstract), 298.
SOUTHWICK, WALTER E. Activity-preventing and egg-sea-water neutralizing substances from spermatozoa of Echinometra subangularis, 147.
——, —— —. The "agglutination" phenomenon with spermatozoa of Chiton tuberculatus, 157.
Spawning, of male, induction by material elaborated by fertilizable Nereis eggs (abstract), 306.
SPEIDEL, C. C. Living cells in action (motion picture) (abstract), 308.
Spelotrema nicolli, life history (abstract), 309.
Spermatogenetic cycle, Fundulus, and external environment, 96.
Spermatozoa, "agglutination" phenomenon with, Chiton tuberculatus, 157.
Stephanostomum tenue (Linton), life cycle, 65.
Swarming annelid, vibration sense (abstract), 313.
Swimbladder, use by fish, in respiratory stress (abstract), 317.

TATUM, E. L., AND G. W. BEADLE. Effect of diet on eye-color development in Drosophila melanogaster, 415.
——, —. —. *See* Beadle, Tatum and Clancy, 407.
Temperature, constant, and increased time of development, effect on wing size vestigial Drosophila, 432.
——, effects on male sexual cycle, Fundulus, 92.
——, nerve asphyxiation and aerobic recovery (abstract), 305.
——, starch and fat in Chilomonas paramecium (abstract), 298.
Test secretion, two species of Folliculina, 448.
Toadfish liver, permeability to inulin (abstract), 332.
TOWNSEND, GRACE. A vibration sense in a swarming annelid (abstract), 313.
——, ——. On the nature of the material elaborated by fertilizable Nereis eggs inducing spawning of the male (abstract), 306.
Trematode, Stephanostomum tenue (Linton), life cycle, 65.
TRINKAUS, J. P. *See* Goodrich and Trinkaus, 192.
Triturus viridescens, androgenetic embryos which have ceased development (abstract), 334.
Tunicates, feeding method, 443.

UCA pugilator, moulting and viability after eyestalk removal (abstract), 326.

V^+ hormone, production by fat bodies, Drosophila, 407.
Vacuole systems of fresh water limacine Amoeba (abstract), 334.
Vibration sense in a swarming annelid (abstract), 313.
Viscosity of protoplasm, sea urchin egg, effect of electric current, 399.
Vision, retinal pigment, and theory of asymmetry of flicker-response contour, crayfish, 126.

WATERMAN, A. J. The action of certain drugs on the intact heart of the compound ascidian, Perophora viridis (abstract), 337.
WELSH, JOHN H. The action of eyestalk extracts on retinal pigment migration in the crayfish, Cambarus bartoni, 119.
WENRICH, D. H. Food habits of Endamoeba muris (abstract), 313.
Wing size, vestigial, Drosophila, effect of increasing development time at constant temperature, 432.
WOLF, ERNST. *See* Crozier and Wolf, 126.

WOLF, OPAL. An effect of the injection of a solution of dihydroxyestrin into castrated female frogs, Rana pipiens (abstract), 338.

X-RAY effect, fixation, by fertilization, Arbacia eggs (abstract), 325.
—— ——, on cleavage time of Arbacia eggs in absence of oxygen (abstract), 325.
—— ——, on nucleus, dependent on cytoplasm? (abstract), 326.

YOUNG, R. A. *See* Costello and Young (abstract), 311.

ZEBRA fish, karyokinesis during cleavage, 79.
ZOBELL, CLAUDE E. The rôle of bacteria in the fouling of submerged surfaces (abstract), 302.
ZWILLING, EDGAR. Determination and induction of the anuran olfactory organ (abstract), 311.